AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

1. (Previously Presented) A method of producing an interpenetrating polymer network (IPN) comprising the steps of

i) providing a silicone polymer composition,

ii) providing one or more monomers for a polymer,

iii) providing a solvent for the one or more monomers,

iv) exposing said silicone polymer composition to said one or more monomers and said solvent to precipitate monomer within said silicone polymer composition and

v) polymerizing said monomer to form an IPN,

wherein said solvent has a surface tension at the exposing step of about 15 mN/m or less.

2. (Previously Presented) A method of producing an IPN according to claim 1, wherein said solvent has a surface tension in liquid form of about 15 mN/m or less.

3. (Previously Presented) A method of producing an IPN according to claim 1, wherein said silicone polymer composition comprises at least 10 % by weight of polymer having a backbone consisting of Si and O molecules.

4. (Currently Amended) A method of producing an IPN according to claim 1, wherein said silicone polymer composition comprises at least 10 % by weight of polymer having a backbone ~~consisiting~~ consisting of Si molecules.

5. (Previously Presented) A method of producing an IPN according to claim 1, wherein said silicone polymer composition comprises at least 10 % by weight of polysiloxane polymer.

6. (Currently Amended) A method of producing an IPN according to claim 1, wherein said silicone polymer composition comprises one or more polymers selected from the group consisting of dimethyl ~~polysiloxan~~ polysiloxane, methylphenyl polysiloxane, fluorosilicone rubber, silicone esters, polysiloxanes, polysilanes, polychlorosilanes, polyalkoxysilanes, polyaminosilanes, ~~polysilanes~~ polydialkylsiloxanes, and ~~polysilioxanes~~ polysiloxanes containing phenyl substituents, said polymers of the silicone polymer composition optionally being vinyl-functionalized and/or optionally being partially or fully fluorinated.

7. (Currently Amended) A method of producing an IPN according to claim 1, wherein said silicone polymer composition comprises up to 90 % by weight of non-silicone polymers or co-polymers, fillers and/or additives, said non-silicone polymers being thermoplastics or thermosets, and being selected from polyolefins, polyesters, polyurethanes, polycarbonates, and polyvinyl polymers, said fillers being particles or fibres ~~e.g.~~ in the form of minerals or organic fillers, ~~preferably~~ and being selected from silica, metals, metal oxides, mixed metal oxides, glass beads and glass fibers, and additives being selected from adhesion promoters ~~for 2K-constructions~~, process and plasticizing oils, antioxidants and pigments.

8. (Previously Presented) A method of producing an IPN according to claim 1, wherein said silicone polymer composition is partially vulcanized.

9. (Previously Presented) A method of producing an IPN according to claim 1, wherein said silicone polymer composition is a vulcanized rubber.

10. (Previously Presented) A method of producing an IPN according to claim 1, wherein said one or more monomers are dissolvable in said solvent when said solvent is in liquid state, in gas state or in supercritical state.

11. (Previously Presented) A method of producing an IPN according claim 1, wherein said one or more monomers comprise at least 1 % by weight of one or more of the monomers selected from silicone containing monomers, olefins, styrene, vinylpyrrolidone, oxygen- and nitrogen-containing monomers, aromatic compounds, aromatic resins, imadazol and imidazol derivatives, pyrazoles, quaternary ammonium compounds, polyurethane prepolymers and epoxy resins.

12. (Previously Presented) A method of producing an IPN according to claim 1, wherein said one or more monomers comprise at least 50 % by weight of vinylpyrrolidone.

13 (Previously Presented) A method of producing an IPN according to claim 1, wherein said one or more monomers comprise at least 50 % by weight of olefins.

14. (Previously Presented) A method of producing an IPN according to claim 1, wherein said one or more monomers comprise at least 50 % by weight of silanes.

15. (Previously Presented) A method of producing an IPN according to claim 1, wherein said one or more monomers are free radical polymerizable.

16. (Previously Presented) A method of producing an IPN according to claim 1, wherein the solvent is one or more hydrocarbons or carbon-containing compounds or a composition comprising hydrocarbons or carbon-containing compounds with a Hildebrand solubility of below 11, the silicone polymer composition being exposed to the solvent in its supercritical state or near its supercritical state, where the term 'near its supercritical state' means that the total pressure is at least 10 bar.

17. (Previously Presented) A method of producing an IPN according to claim 1, wherein the solvent comprises one or more compounds from the group of C_1-C_{12} hydrocarbons or carbon-containing compounds, methanol, acetone, N_2O and CO_2, the silicone polymer composition being exposed to the solvent in supercritical state.

18. (Previously Presented) A method of producing an IPN according to claim 1, wherein the solvent has a surface tension in liquid form of about 15 mN/m or less, the silicone polymer composition being exposed to the solvent while it is in one or more of its states liquid state, gas state and supercritical state.

19. (Previously Presented) A method of producing an IPN according to claim 18, wherein said solvent comprises at least 50 % by weight of one or more of the components selected from the group consisting of CO_2, and N_2O and C_1-C_5 hydrocarbons, the solvent comprising at least 50 % by weight of CO_2.

20. (Previously Presented) A method of producing an IPN according to claim 1, wherein the solvent comprises a surfactant selected from anionic, cationic, non-ionic and amphoteric surfactants, said solvent comprising up to 5 % by weight of surfactant.

21. (Previously Presented) A method of producing an IPN according to claim 1, wherein a radical starter is incorporated into said silicone polymer, by physical compounding, by swelling or impregnation in dissolved condition, or by co-impregnation with the one or more monomers, the amount of radical starter being sufficient to initiate the polymerization.

22. (Previously Presented) A method of producing an IPN according to claim 1, wherein said one or more monomers are dissolved in the solvent together with a radical starter, the amount of radical starter being sufficient to initiate the polymerization.

23. (Previously Presented) A method of producing an IPN according to claim 21, wherein the amount of radical starter is at least 0.01 mol % of the monomer.

24. (Previously Presented) A method of producing an IPN according to claim 21, wherein said radical starter is selected from peroxides, azo-compounds, and photo-labile compounds, said radical starter being heat- or radiation activatable.

25. (Previously Presented) A method of producing an IPN according to claim 1, wherein said monomer is dissolved in liquid solvent, said silicone polymer composition being exposed to said solvent while the solvent is in liquid state, in gas state and/or supercritical state.

26. (Previously Presented) A method of producing an IPN according to claim 1, wherein said monomer is dissolved in gas solvent, said silicone polymer composition being exposed to said solvent while the solvent is in liquid state, in gas state and/or in supercritical state.

27. (Previously Presented) A method of producing an IPN according to claim 1, wherein said monomer is dissolved in supercritical solvent, said silicone polymer composition being exposed to said solvent while the solvent is in liquid state, in gas state and/or in supercritical state.

28. (Previously Presented) A method of producing an IPN according to claim 1, wherein said silicone polymer composition is exposed to said solvent for a sufficient time to swell the silicone polymer composition with at least 0.01 % by weight of solvent calculated on the weight of the silicone polymer composition.

29. (Previously Presented) A method of producing an IPN according to claim 1, wherein said silicone polymer composition is exposed to said solvent under varying pressure, the pressure being decreased after at least part of the solvent has been swelled into the silicone polymer composition whereby monomer(s) precipitate within the silicone composition.

30. (Previously Presented) A method of producing an IPN according to claim 1, wherein said silicone polymer composition is exposed to said solvent under varying temperature, the temperature being decreased after at least part of the solvent has been swelled into the silicone polymer composition whereby monomer(s) precipitate within the silicone composition.

31. (Previously Presented) A method of producing an IPN according to claim 1, wherein said silicone polymer composition is exposed to said solvent under conditions where the solvent is in a first state, followed by a change of conditions whereby the solvent changes to a second state, said first state being liquid state or supercritical state and said second state being gas state.

32. (Previously Presented) A method of producing an IPN according to claim 1, wherein said silicone polymer composition is exposed to said solvent with said one or more monomers for a sufficient time to precipitate at least 0.01 % by weight of monomer(s) of the total weight of the silicone polymer composition.

33. (Previously Presented) A method of producing an IPN according to claim 1, wherein said silicone polymer composition is exposed in two or more steps to said solvent with one or more monomers to provide at total monomer precipitation of at least 0.01 %by weight of monomer(s) of the total weight of the silicone polymer composition, said two or more steps being equal or different from each other with respect to solvent, monomer amounts and/or exposing time.

34. (Previously Presented) A method of producing an IPN according to claim 31, wherein said silicone polymer composition is exposed to said solvent with said one or more monomers for a total time of at least 1 min.

35. (Previously Presented) A method of producing an IPN according to claim 1, wherein said silicone polymer composition is treated with the solvent in or near its supercritical state followed by feeding of the monomer into the reaction chamber where the monomer is dissolved in the solvent in or near its supercrital state while the silicone polymer composition simultaneously is exposed to the solvent.

36. (Previously Presented) A method of producing an IPN according to claim 1, wherein said silicone polymer composition is exposed to a solvent consisting essentially of

carbon dioxide and carrying the monomer(s) in or near its supercritical state, for a sufficient time to swell the silicone polymer composition with the solvent carrying the monomer(s).

37. (Previously Presented) A method of producing an IPN according to claim 1, wherein said silicone polymer composition prior to the exposing step is shaped, by extrusion, injecting-moulding, calendaring, pressing or cutting.

38. (Previously Presented) A method of producing a polymeric unit comprising:

-producing an IPN unit in a desired shape by a method according to claim 1, and

-treating the surface thereof by plasma or flame surface activation and subsequent painting, or immediate painting or coating.

39. (Original) A method of producing a polymeric unit according to claim 38 wherein the silicon polymer composition used for the IPN is transparent.

40. (Previously Presented) A method of producing a polymer unit according to claim 38, wherein the one or more monomers comprise one or more monomers selected from styrene, acrylics and urethanes.

41. (Previously Presented) A method of producing a polymer membrane comprising:

-producing an IPN unit shaped as a membrane by a method according to claim 1, wherein the membrane has a thickness between 5 and 1000μm.

42. (Previously Presented) A method of producing a polymer membrane according to claim 41, wherein the amount of monomer precipitated into the silicone polymer composition is 5 % by weight or less.

43. (Previously Presented) A method of producing a polymer membrane according to claim 41, wherein the membrane is a membrane for separation of gases or liquids.

44. (Previously Presented) A method of producing a polymer membrane according to claim 41, wherein the membrane is a fuel cell membrane, said membrane being less permeable to gases than the original silicone composition at least by a factor of 2, and whereby the conductivity for protons (H^+) is increased in comparison with the original silicone composition by incorporation of proton-conducting monomers, the conductivity for protons (H^+) being increased in comparison with the original silicone composition by a factor or at least 10.

45. (Currently Amended) An IPN comprising at least a silicone polymer composition, said IPN being obtained by a method according to claim 1 and being essentially free of organic solvents.

46. (Original) An IPN according to claim 45 wherein the IPN is a full IPN comprising at least two interpenetrating, individually cross linked networks.

47. (Canceled)

48. (Previously Presented) An IPN according to claim 45 wherein the IPN comprises a network of polyvinylpyrrolidone.

49. (Previously Presented) An automotive part comprising a polymeric unit obtained by a method according to claim 38.

50. (Previously Presented) A telecom part comprising a polymeric unit obtained by a method according to claim 38.

51. (Previously Presented) A medical device selected from catheter, part of a pace maker and an implant, comprising a polymeric unit obtained by a method according to claim 38.

52. (Previously Presented) A gas separation membrane comprising a polymer membrane obtained by a method according to claim 41.

53. (Previously Presented) A fuel cell membrane comprising a polymer membrane obtained by a method according to claim 41.